BiRDy: Bullying Role Detection in Multi-Party Chats

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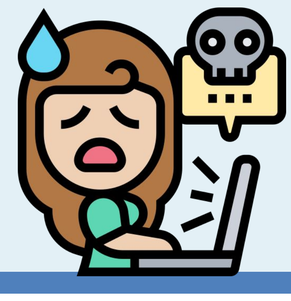
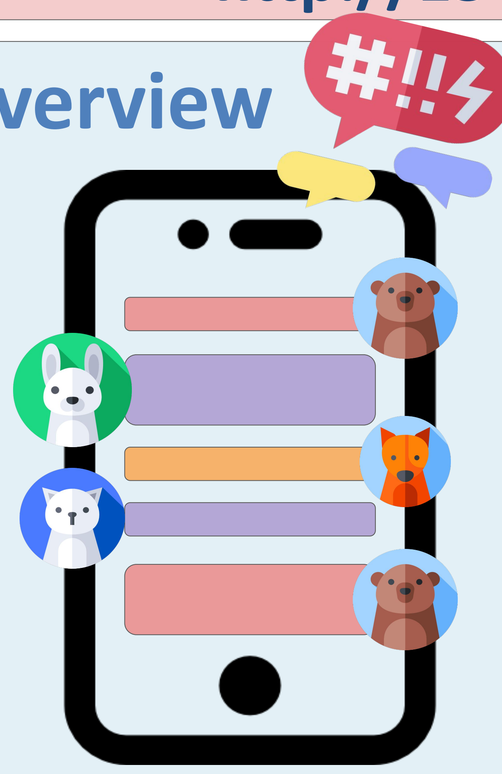


BiRDy is a solution aiming at <u>automating the identification of the different participant role of involvement in cyberbullying episodes</u>, e.g. victim, bully, conciliator, bystanders assistant or defender

http://134.59.134.227/demo_prd/index.html

BirDy Overview



input:
multi-party chats

pipeline:
participant role classification
role scoring function

output:
unique role assignment

PRI classification

<u>Preprocess</u>:
Exploring the use of **contextual window** by collecting for each message the ***n* previous sentences authored by the same user;**

<u>Modelling</u>:

Classifying exchanged messages according to the role of the author (e.g. victim, bully, bystanders, conciliator) using **fine-tuned multilingual BERT models**.

Role scoring

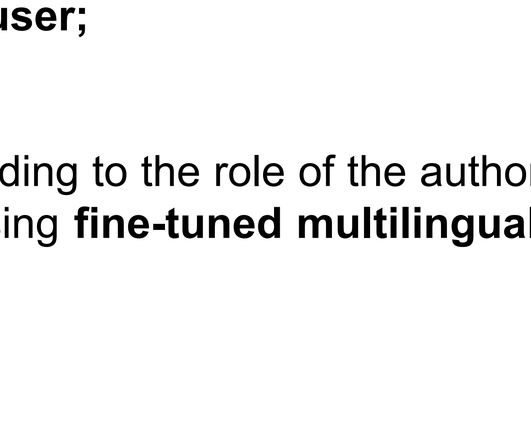
Assign a unique role to users by considering the probabilities established by the model.

$$Role\_scoring(u,l) = \frac{\sum_{\substack{m \in speech\_acts(u) \\ argmax(D(m))=l}} P_{am}(m,l)}{|speech\_acts(u)|}$$

Confidence Score

Detailing for each label the **degree of likelihood** per user.

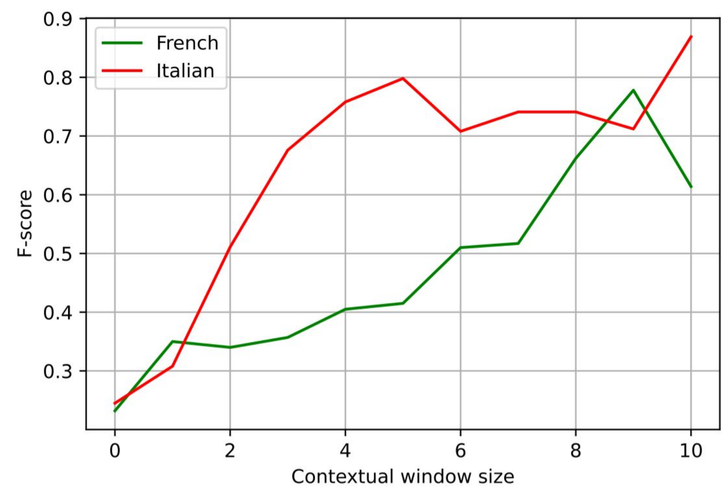
$$Confidence(u,l) = \frac{|U| \times Role\_scoring(u,l)}{\sum_{u' \in U} Role\_scoring(u',l)}$$



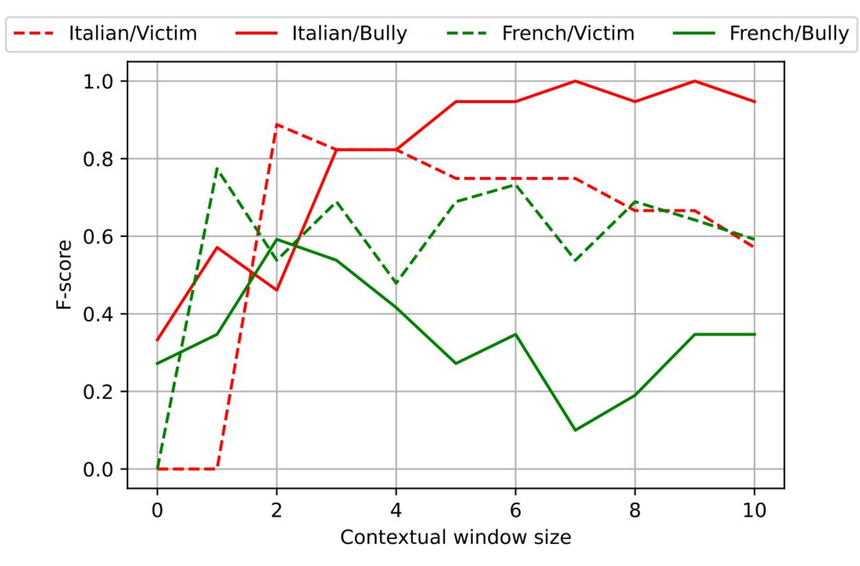
Evaluation

<u>Datasets</u>:
French: aollagnier/CyberAgressionAdo-v1
Italian: dhfbk/WhatsApp-Dataset

<u>PRI classification</u>



<u>Bully/Victim classification</u>



Acknowledgements

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